LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI - B

WATERBODY MANAGEMENT PLAN SERIES

BLIND RIVER, LOUISIANA

WATERBODY EVALUATION &
RECOMMENDATIONS

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED ANNUALLY

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WATERBODY EVALUATION

STRATEGY STATEMENT

Recreational

Recreational fish species are managed to maintain sustainable populations while providing anglers the opportunity to catch or harvest numbers of fish.

Commercial

Commercial fish species are managed to provide sustainable populations.

Species of Special Concern

Species of special concern are managed toward viable, self-sustaining populations.

EXISTING HARVEST REGULATIONS

Recreational

All statewide regulations apply to game fish species, see link below:
http://www.wlf.louisiana.gov/fishing/regulations

Commercial

All statewide regulations apply to commercial fish species, see link below:
http://www.wlf.louisiana.gov/fishing/regulations

Species of Special Concern

Paddlefish (*Polyodon spathula*) have a 30" max lower jaw fork length, 2 fish daily limit, fish cannot be retained alive; fish cannot be harvested by snagging methods. Pallid sturgeon (*Scaphirhynchus albus*), shovelnose sturgeon (*Scaphirhynchus platorynchus*), and Gulf sturgeon (*Acipenser oxyrinchus desotoi*): no legal harvest or possession.
http://www.wlf.louisiana.gov/fishing/regulations

SPECIES EVALUATION

Recreational

Largemouth bass (*Micropterus salmoides, M. floridanus, and M. salmoides x floridanus hybrids*) are targeted for evaluation since they are a species indicative of the overall fish population due to their high position in the food chain and because they are highly sought after by anglers. Electrofishing is the best indicator of largemouth bass abundance and size distribution, with the exception of large fish.

Largemouth Bass

Catch per unit effort, relative weight and structural indices-

Spring electrofishing results indicate considerable variability of catch-per-unit-effort (CPUE) of largemouth bass following hurricanes Katrina, Gustav and Isaac, 2005, 2008 and 2012, respectively (Figures 1 and 2). The storms created water quality conditions, such as low dissolved oxygen, that resulted in major fish kills. In the years following each of these named storms, the mean total CPUE for largemouth rebounded. It was most evident in the number of stock-size fish captured, as these new recruits were the most abundant. Total CPUE for 2010 greatly exceeded the long term averages for both stock- and substock-size classes of largemouth bass as depicted in Figures 1 and 2, respectively.

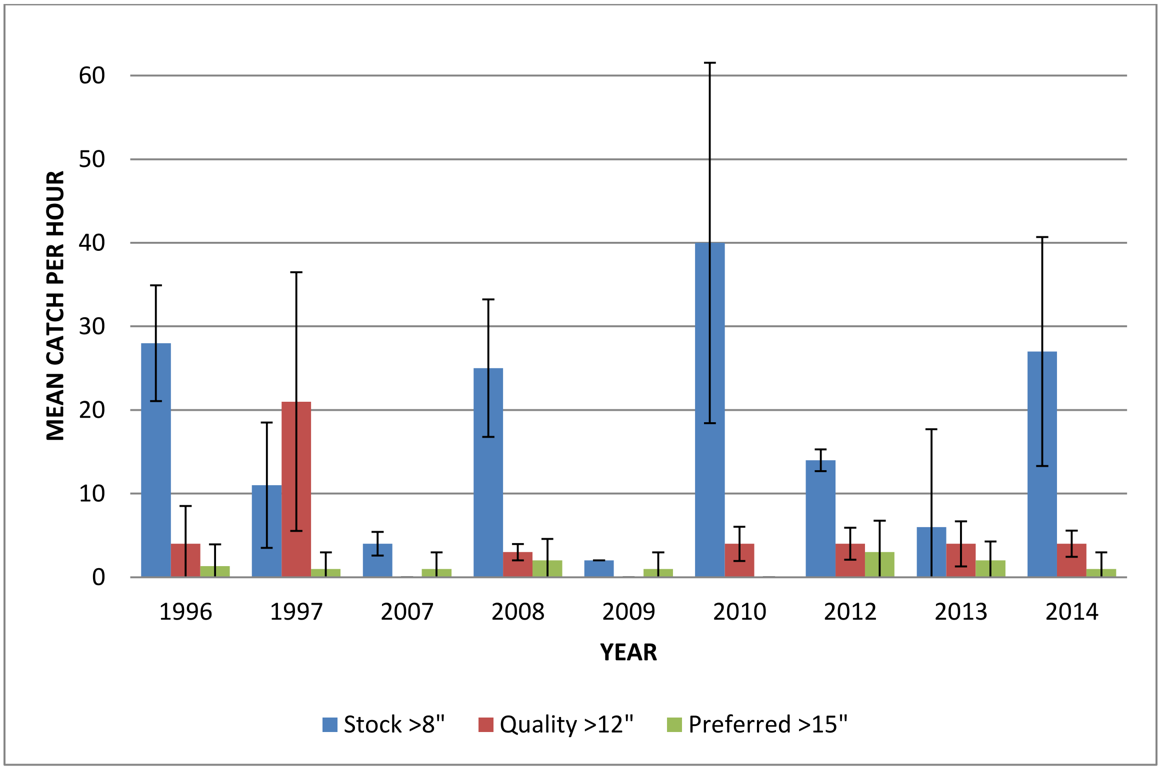

Figure 1. The mean CPUE in number per hour for stock-, quality-, and preferred-size largemouth bass on Blind River, LA, from 1996 to 2014. Error bars represent 95% confidence limits of the mean CPUE.

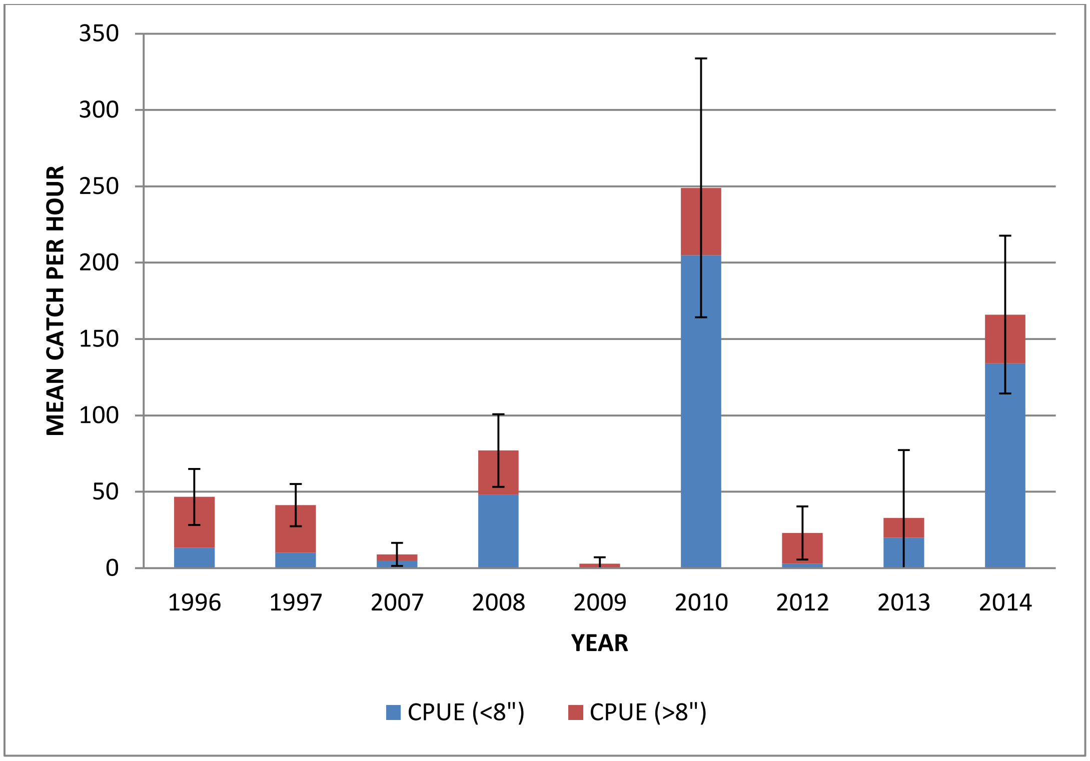

Figure 2. The mean total CPUE values for largemouth bass on Blind River, LA, from spring electrofishing samples from 1996 to 2014. Error bars represent 95% confidence limits of the mean CPUE.

Proportional stock density (PSD) and relative stock density (RSD) are indices used to numerically describe length-frequency data. Proportional stock density compares the number of fish of quality-size (greater than 12 inches for largemouth bass) to the number of bass of stock-size (8 inches in length). The PSD is expressed as a percent. A fish population with a high PSD consists mainly of larger individuals, whereas a population with a low PSD consists mainly of smaller fish. For example, Figure 3 below indicates a PSD of 52 for 1997. The number indicates that 52% of the bass stock (fish over 8 inches) in the sample was at least 12 inches or longer.

$$PSD = \frac{\text{Number of bass}>12\text{ inches}}{\text{Number of bass}>8\text{ inches}} \times 100$$

Relative stock density (RSD) is the proportion of largemouth bass in a stock (fish over 8 inches) that are 15 inches (preferred-size) or longer.

$$RSD = \frac{\text{Number of bass}>15\text{ inches}}{\text{Number of bass}>8\text{ inches}} \times 100$$

Although there were increases in the overall mean CPUE's following 2007,2009 and 2013, the size-structure indices for largemouth bass decreased in the proportion of both quality-size and preferred-size fish (Figure 3). The size distribution comparison (length frequencies) from 2009 to 2014 spring electrofishing results shows that in 2010 and 2014 there were more substock-sized fish inch groups present than in all other years (Figure 4).

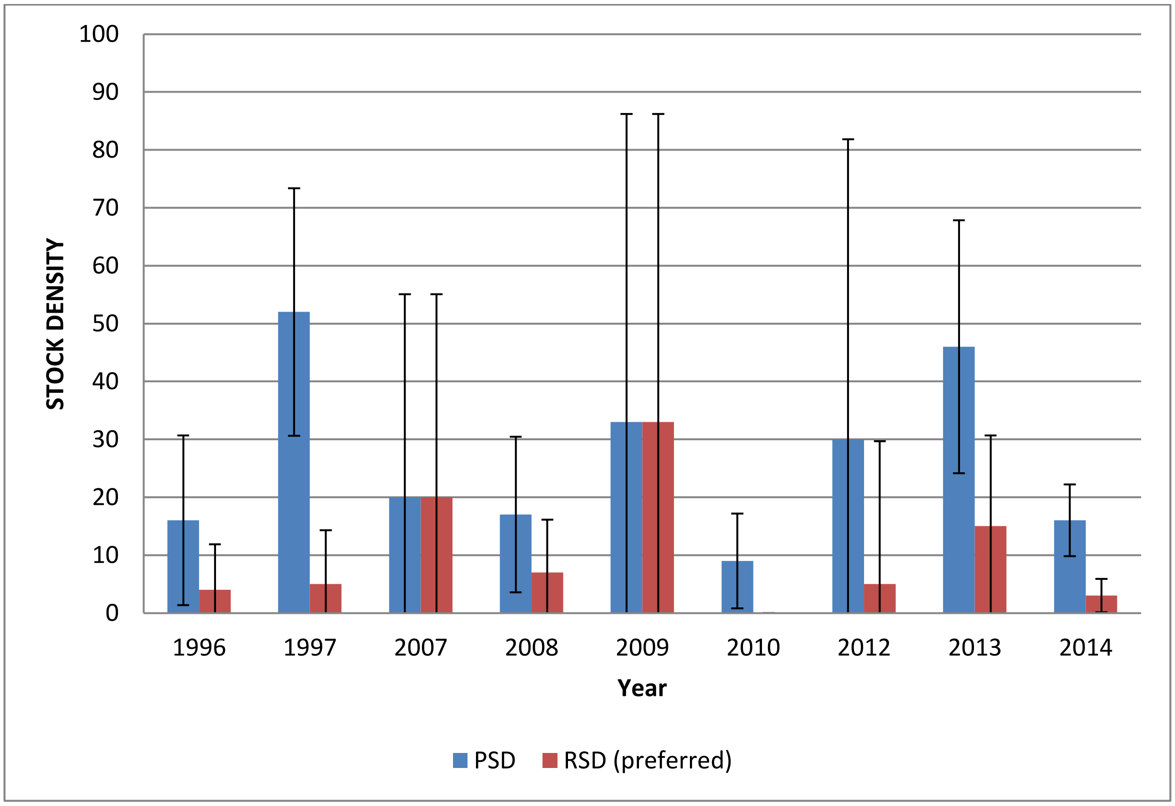

Figure 3. The mean size-structure indices (PSD and RSDp) for largemouth bass from spring electrofishing results on Blind River, LA from 1996 to 2014. Error bars represent 95% confidence limits of the mean size-structure indices.

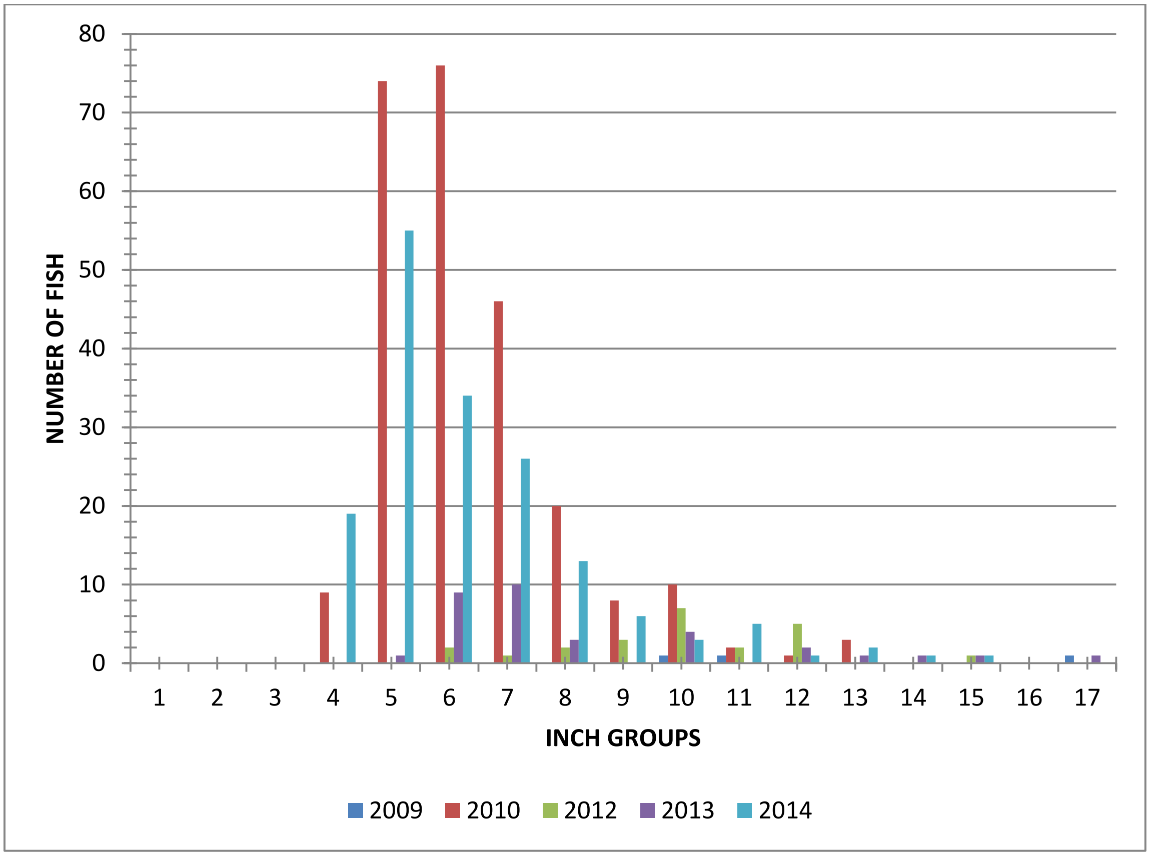

Figure 4. The size distribution (length frequencies) for largemouth bass from spring electrofishing results on Blind River, LA, from 2009 to 2014.

Stocking and Genetics

Over 435,000 Florida largemouth bass (*M. floridanus*) fingerlings have been stocked regularly into Blind River since 1995. A majority of these fish were stocked post hurricanes Katrina and Gustav, in response to public outcry over the massive fish kills that occurred following these storm events. In the post storm absence of predation and competition, the Florida largemouth bass should have become dominant in this coastal river, when in fact this species did not even become established. Genetic testing conducted in 2010 indicated that less than 1% of the Florida genome was present in the sample results (Table 1). Additionally, high CPUE's in 2010 (Figures 1 and 2), along with the genetic results, indicate that the remaining native largemouth bass population, although greatly reduced from pre-storm levels, recovered robustly and that any stocking efforts were unnecessary.

The stocking of Florida largemouth bass in the nearby Tangipahoa River showed a similar fate; the ineffectiveness to establish this genotype during post hurricane recovery. This tenacity for recovery of native largemouth bass populations has also been noted in other coastal river systems including the Calcasieu, Mermentau and Sabine rivers in southwest Louisiana following hurricanes Rita (2005) and Ike (2008). These systems received little to no stockings of largemouth bass before and after the hurricane related fish kills, yet yielded record CPUE's within two years into recovery. These observations suggest that native coastal populations of largemouth bass (and other indigenous fish species) have adapted to these periodic storm events and rapid recovery is part of the natural selection process.

Table 1. Results of 2010 genetic testing for the Florida genome in largemouth bass from Blind River, LA.

Number of fish	% Northern	% Hybrid	% Florida
206	93.7	5.8	0.5

Table 2. Florida largemouth bass stockings into Blind River, LA from 1995 – 2009.

Florida LMB Stocking	
Year	Number of Fish
1995	27,000
1996	27,032
1997	9,800
1999	12,043
2000	14,244
2001	10,000
2002	10,546
2003	10,036
2004	10,013
2005	6,972
2006	75,248
2007	73,743

2008	76,901
2009	75,862
TOTAL	439,440

Recreational – Other Species

Crappie, Catfish and Sunfish-

Black and white crappies (*Pomoxis nigromaculatus and P. annularis*) have both been observed but not monitored in the river, as well as blue and channel catfishes (*Ictalurus furcatus* and *I. punctatus*) , bluegill, redear, spotted, warmouth and longear sunfishes (*Lepomis macrochirus*, *L. microlophus*, *L. miniatus*, *L. gulosus* and *L. megalotis* respectively) . Lead net and hoop net sampling is scheduled in the future to further investigate these fish stocks.

Forage-

Forage availability is typically measured directly through electrofishing and shoreline seine sampling and indirectly through measurement of largemouth bass body condition or relative weight. Relative weight (Wr) is the ratio of a fish's weight to the weight of a ''standard'' fish of the same length. The index is calculated by dividing the weight of a fish by the standard weight for its length, and multiplying the quotient by 100. Largemouth bass Wr below 80 indicates a potential problem with forage availability. Relative weights of largemouth bass caught in the Blind River area ranged from 97 to 102 from 1997 to 2014 for all stock-size and larger fish, indicating an adequate forage base (Figure 5). The mean Wr of largemouth bass from 1997 to 2014 is approximately 98 (Figure 5). This high Wr suggests that there is ample forage available for bass production.

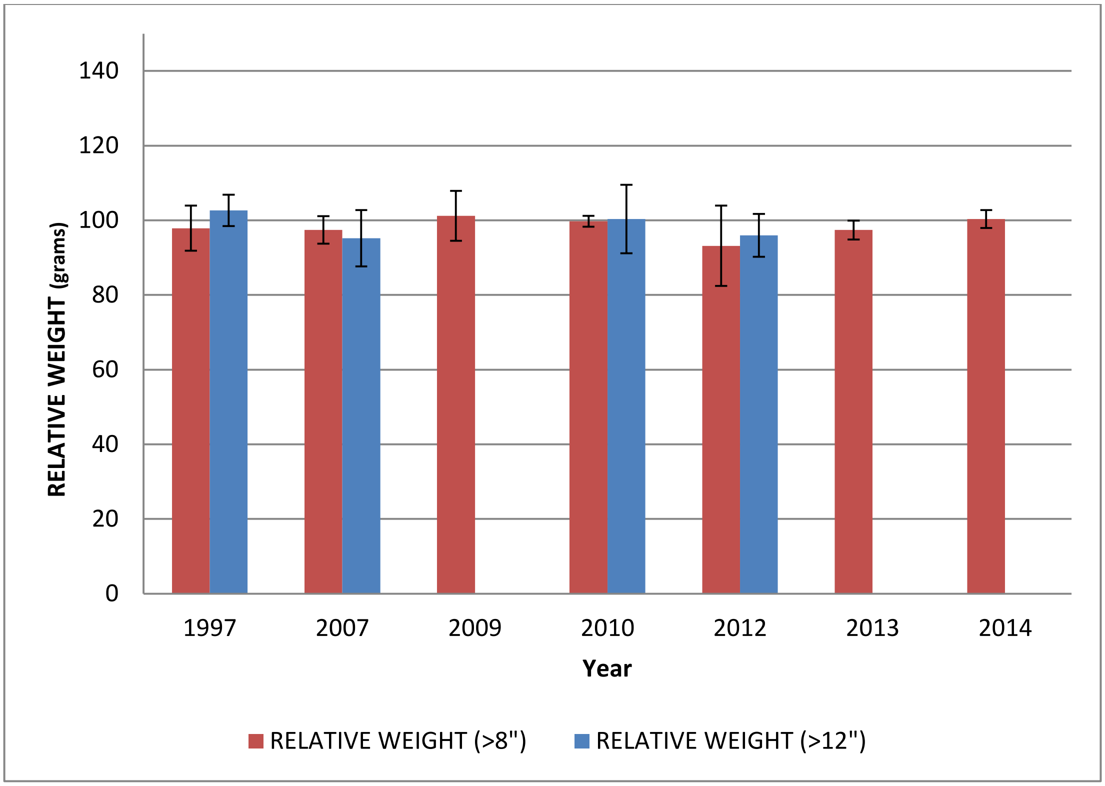

Figure 5. Mean relative weights for largemouth bass collected in fall electrofishing samples from Blind River, LA, for 1997 to 2014. Error bars represent 95% confidence limits of the mean relative weights.

Electrofishing samples from 2014 showed that the available forage was bluegill, redear, spotted, longear and hybrid sunfishes, along with golden shiners (*Notemigonus crysoleucas*), threadfin and gizzard shad (*Dorosoma petenense* and *D. cepedianum*), golden and blackstripe topminnows (*Fundulus chrysotus* and *F. notatus*), and inland silversides (*Menidia beryllina*) (Figure 6).

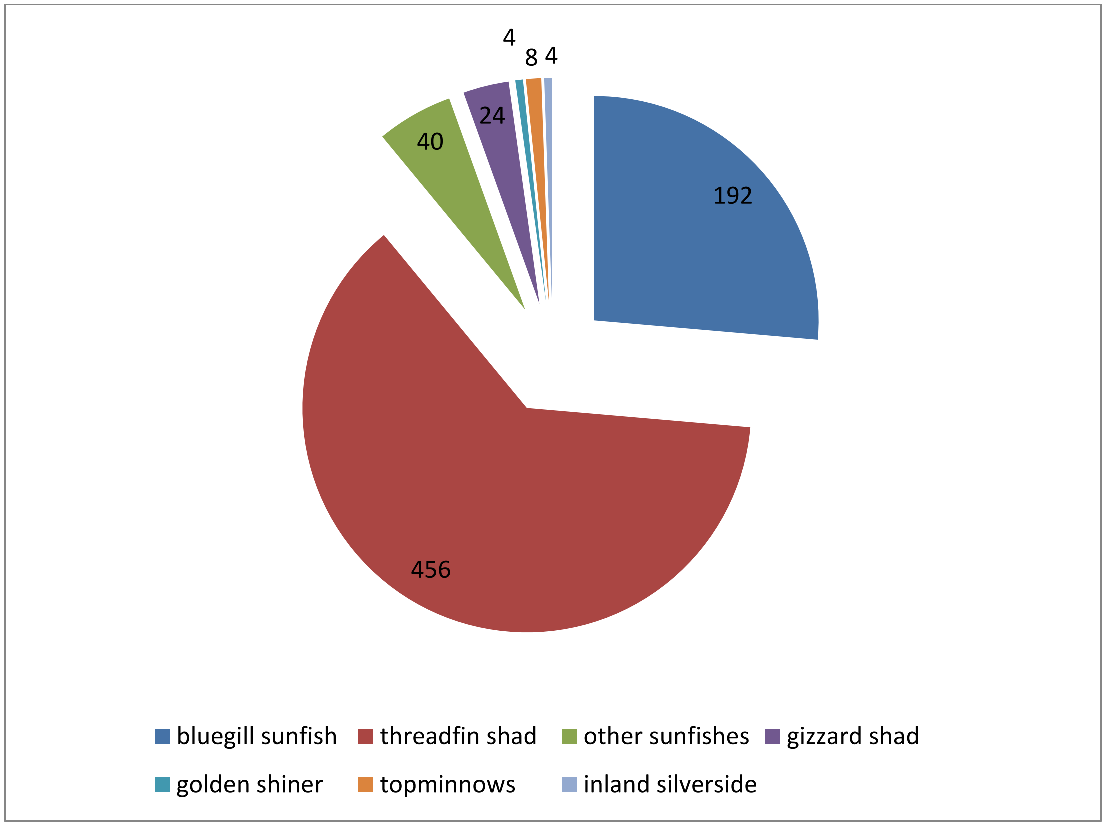

Figure 6. Forage composition in total numbers by species per hour from fall electrofishing results on Blind River, LA, 2014.

Aquatic Invasive Species-

Though their population has not been monitored, common carp (*Cyprinus carpio*) are commonly observed in the river.

Asian carp have not been identified in the river but may have been introduced via the Bonne Carre Spillway operation by the US Army Corps of Engineers during the 2011 flood event.

HABITAT EVALUATION

Aquatic Vegetation

Florida salvinia weevils (*Cyrtobagous salviniae*) have been stocked periodically since 2008 for common salvinia control. Future stockings will be conducted as weevils become available. Samples of common salvinia taken in the fall of 2009 yielded no weevils. This was likely due to the flushing out of plant material following Hurricane Gustav. All samples of common salvinia following the 2013 stockings have yielded adult weevils. Detection of weevils in the springs of 2014 and 2015 is an indication that the population has successfully established and is overwintering.

The Blind River generates a large number of complaints each year, and they are addressed accordingly. An average of 805 acres of vegetation is chemically treated annually. The majority of the treated vegetation is common salvinia. The remaining acreage is composed of water hyacinth, alligator weed, pennywort, primrose, water paspalum and duckweed.

Common salvinia and water hyacinth have been the main subjects of access and habitat complaints over the past few years. Common salvinia is scattered throughout the basin and is constantly being restocked by the flushing and draining of adjacent swamps and bayous.

<u>Estimates of vegetation coverage (as of December 2, 2014) are provided below:</u>

Problematic Species-
Common Salvinia (*Salvinia minima)* – 300 acres
Water Hyacinth (*Eichhornia crassipes)* – 100 acres
Duckweed (*Lemna spp.)* – 100 acres
Duck Lettuce (*Ottelia alismoides*) – 100 acres
Beneficial Species
Yellow Water Lily (*Nymphaea mexicana)* – 45 acres
Coontail (*Ceratophyllum demersum)* – 45 acres

Estimates of problematic species acreages for 2015 are expected to be similar to those reported in 2014.

Common salvinia is controlled with foliar applications of diquat (0.75 gallons per acre) and a non-ionic surfactant (0.25 gal/acre) from November 1 through March 31. A mixture of glyphosate (0.75 gal/acre) and diquat (0.25 gal/acre) with Aqua King Plus (0.25 gal/acre) and Air Cover (12 oz/acre) surfactants is used outside of that time frame.

Water hyacinth is controlled with foliar applications of 2,4-D at a rate of 0.5 gallons per acre. During the colder months when plant activity is slowed, or if the problem area is in a restricted zone, diquat (0.75 gal/acre) with a non-ionic surfactant (0.25 gal/acre) is used.

Water lilies (*Nymphaea spp*.) grow along much of the shallow shoreline of the river. Although the water lilies generally do not impair boating access, aquatic herbicide applications are routinely administered for control.

<u>Water Quality</u>

In 2006, the Environmental Protection Agency listed Blind River waters as impaired due to organic enrichment/depletion of oxygen, mercury, nitrates, sedimentation/siltation, total phosphorus, and turbidity. There were no potential sources reported and achievement of the total maximum daily loads was anticipated by 2011.

http://ofmpub.epa.gov/tmdl_waters10/attains_watershed.control?p_huc=08070204&p_cycle=&p_report_type=T

Substrate

Sandy river bottoms, high in inorganic material.

Artificial Structure

None

CONDITION IMBALANCE / PROBLEM

1. Lack of riverine influence has resulted in poor water quality conditions including: high organic load, low dissolved oxygen, stagnant backwaters that frequently flow into the river and saltwater intrusion from Lake Maurepas.

2. Blind River is very susceptible to major fish kills, especially in the event of a tropical storm or hurricane.

CORRECTIVE ACTION NEEDED

1. Restoration of Maurepas Swamp through diversions to improve water quality of Blind River.

2. Restoration of river flow into the system.

RECOMMENDATIONS

1. Seek opportunities for diversion of Mississippi River water into the Maurepas Swamp and Blind River system to restore historic natural seasonal water fluctuations.

2. Continue standardized sampling of fish populations to evaluate the condition of the stocks.

3. Continue to work with the Office of Coastal Protection and Restoration on proposed diversion projects.

4. Continue to control aquatic vegetation as needed through biological (weevil introductions) and chemical applications. Aquatic vegetation is treated according to the Aquatic Herbicide Application Procedure as adopted by the LDWF Inland Fisheries Section.